REMARKS

Claims 1 through 45 are pending in the present application.

Objections

The Office has objected to the title. The specification has been amended to incorporate the title suggested by the Office.

The Office has objected to Claims 38, 40, 41, and 43 for various informalities. The amendments herein correct these informalities.

Throughout the claims, the term "the step of" has been removed by the Applicant where used to antecedently identify a previous step. For example, referring to claim 4, the phrase "as a result of the step of performing the error recovery operation . . . " has been amended to recite "as a result of performing the error recovery operation . . . ". This has been done for stylistic consistency when referring to an antecedent step.

Rejections under 35 U.S.C. § 112

The Office has rejected Claims 1, 7, 12, 15, 20, and 25 under 35 USC § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Claims 1, 7, 12, 15, 20 and 25 have been amended in the manner suggested by the Office to recite enabling detection of a condition that identifies an error. Based upon the amendments, withdrawal of the rejection of claims under § 112 is respectfully requested.

Rejections under 35 U.S.C. § 102

Amended Claim 1 recites dynamically enabling detection of a condition that identifies an error as being a packet stream that is scrambled. Claim 1 has been amended to include the term "dynamically" in order to clarify the fact that detection of a condition that identifies the error is dynamically enabled. While it is believed that the claim as originally drafted, e.g. without the term "enabling" being qualified by the term "dynamically", indicated that the error

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dedection was dynamically enabled, the term "dynamically" has been added in order to reinforce, and clarify this fact.

The Office states Nuber teaches a method and apparatus for dynamically enabling detection of a condition that identifies and error in a packet stream. The Applicants respectfully disagree. Specifically, Nuber does not disclose dynamically enabling detection of a condition to identify the error. For example, Nuber states, beginning at column 16, line 4, that when a transport packet is received if its transport scramble control bit set to anything other than not scrambled this condition will be treated identically to a section of a transport packet which has its transporter indicator set. This portion of Nuber does not teach dynamic enabling of error detection. This portion of Nuber states that this condition is always checked. Therefore, because dynamically enabling error detection as claimed is not disclosed in the specification, withdrawal of the rejection of claim 1 under § 102 is respectfully requested, and its allowance solicited.

Because independent claim 1 is believed to be in condition for allowance, so are its dependent claims 2-11. In addition, claims 2-11 contain other novel aspects of the invention. For example, claim 3 recites that the packet stream being checked for scrambling is a packetized elementary stream (PES) as opposed to a transport packet. Whereas Nuber seems to apply only to transport packets.

Amended Claim 20 recites dynamically enabling detection of a condition that identifies a continuity discrepancy as a recognized error. Claim 20 has been amended to include the term "dynamically" in order to clarify the fact that detection of a condition that identifies the error is dynamically enabled. While it is believed that claim 20 as originally drafted, e.g. without the term "enabling" being qualified by the term "dynamically", indicated that the error detection was dynamically enabled, the term "dynamically" has been added only to reinforce, and clarify this fact.

The Office states Nuber teaches a method and apparatus for dynamically enabling detection of a condition that identifies a continuity discrepancy as a recognized error. The Applicants respectfully disagree. Specifically, Nuber does not disclose dynamically enabling detection of a continuity discrepancy as an error. Because dynamically enabling error detection

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as claimed is not disclosed in the specification withdrawal of the rejection of claim 20 under § 102 is respectfully requested, and its allowance solicited.

Because independent claim 20 is believed to be in condition for allowance, so are its dependent claims 21-23. In addition, Claims 21-23 contain other novel aspects of the invention. For example, claim 21 recites determining a continuity error rate based upon a continuity discrepancy count and a packet count. Nowhere does Nuber disclose determining a continuity error rate.

Amended Claim 25 recites dynamically enabling detection of a condition that identifies syntax errors in a packetized elementary stream as a recognized error. Claim 25 has been amended to include the term "dynamically" in order to clarify the fact that detection of a condition that identifies the error is dynamically enabled. While it is believed claim 25 as originally drafted, e.g. without the term "enabling" being qualified by the term "dynamically", indicated that the error detection was dynamically enabled, the term "dynamically" as been added only to reinforce, and clarify this fact.

The Office states Nuber teaches a method and apparatus for dynamically enabling detection of a condition that identifies a syntax error as a recognized error as recited in claim 25. The Applicants respectfully disagree. Specifically, Nuber does not disclose dynamically enabling detection of a syntax as an error. Furthermore, Nuber does not indicate enabling error detection for specific syntax parameters associated with packetized elementary streams (PES) as recited in the claim. Instead, Nuber focuses on detecting errors associated with transport packets, as opposed to errors associated with the PES packets, which transported as payload of the transport packets. Therefore, withdrawal of the rejection of Claim 25 under § 102 is respectfully requested because Nuber does not disclose dynamically enabling an error condition that identifies syntax errors in packetized elementary stream, for this reason withdrawal of the rejection of Claim 25 is respectfully requested, and prompt allowance of Claim 25 is solicited.

Because independent claim 25 is believed to be in condition for allowance, so are its dependent claims 26-31. In addition, claims 26-31 contain other novel aspects of the invention. For example, Nuber does not disclose the predetermined syntax for enabling error detection to

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be a fixed bit pattern (claim 26), a value range (claim 27), or based upon a previous packet (claim 29).

Rejections under 35 U.S.C. § 103

Independent Claim 12 has been rejected by the Office under Section 103 as being unpatentable over Nuber in view of Bock. Amended Claim 12 recites dynamically enabling hardware detection of a condition that identifies an asserted indicator in a packet as a recognized error. Claim 25 has been amended to include the term "dynamically" in order to clarify the fact that detection of a condition that identifies the error can be dynamically enabled. While it is believed claim 25 as originally drafted, e.g. without the term "enabling" being qualified by the term "dynamically", indicated that the error detection was dynamic, the term "dynamically" as been added only to reinforce, and clarify this fact.

The Office states Nuber teaches a method and apparatus for dynamically enabling hardware detection as claimed. The Applicants respectfully disagree. Specifically, Nuber does not disclose dynamically enabling hardware detection of an error. Instead, any errors detected by Nuber are always detected. Likewise, Bock does not disclose dynamically enabling hardware detection as recited. Because dynamically enabling error detection as recited in claim 12 is not disclosed or suggested by either Nuber or Bock, claim 12 is necessarily non-obvious over the combination of Nuber and Bock. Claim 12 further recites determining if the packet includes an asserted indicator in a packet, which will then be interpreted as an error. While Bock at columns 19 and 20 discloses use of CRC checks, the use of CRC is not an indicator in a packet that is interpreted as a recognized error. Instead, a CRC value has to be compared to a value derived at a receiving device to determine if an error occurred. Therefore, the combination of Nuber and Bock neither discloses nor suggests enabling hardware detection of a condition that identifies an asserted indicator in a packet as a recognized error. For these reasons withdrawal of the rejection of claim 12 under § 103 is respectfully requested, and its allowance solicited.

Because Claim 12 is believed to be in condition for allowance, so are the claims that depend from independent Claim 12. In addition, the claims which depend from independent Claim 12 provide additional points of novelty. For example, Claim 15 recites enabling

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hardware detection by asserting a register bit, which is different than providing flag to notify the presence of an error as suggested by the Office.

Independent Claim 32 has been rejected by the Office under Section 103 as being unpatentable over Nuber in view of Galbi. Claim 32 recites sending an error indicator to a video decoder processor with it is determine an error occurs. Neither Nuber nor Galbi disclose or suggest alone or in combination, sending an error indicator to a video encoder. Galbi does disclose sending an error indicator to an audio decoder so that the error indicator can be replaced with reconstructed data to limit effects of the error. However, Galbi does not disclose or suggest sending an error indicator to a video decoder. Because neither Galbi nor Nuber disclose or suggest providing an error indicator to a video decoder claim 32 is necessarily non-obvious.

Summary

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In conclusion, Applicant has overcome all of the Office's rejections, and early notice of allowance to this effect is earnestly solicited. If, for any reason, the Office is unable to allow the Application on the next Office Action, and believes a telephone interview would be helpful, the Examiner is respectfully requested to contact the undersigned attorney.

Respectfully submitted,

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Date

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Detailed Description Of The Drawings:

In accordance with a specific embodiment of the present invention, detection and/or handling of error condition is enabled for an error being in the transport packet stream. A determination is made whether received data contains detectable error. If so, an error recovery operation is performed that includes the following: notification of the host CPU, MPEG video decoder, a display processor, and/or disregarding the data. The present invention is better understood by example with reference to the Figures herein, and [an] in particular with reference to Figures 48-53.

Paragraph 4, page 12:

The FRAMER DATA and FRAMER DEN signals are provided to each of the parsers of Figure 7, and the Buffer controller 760. The TPP parser 720 receives the header information of new packets when the framer 710 asserts an IN SYNC signal and a [an] PACKET START signal. The combination of these signals, when asserted, indicate that the present FRAMER DATA is part of the packet header. As a result, the TPP 720 receives the FRAMER DATA from the data bus for parsing.

Paragraph 3, page 89:

The errors listed in the status codes above are based upon specific information associated with the headers of the specific packets. For example, in the transport packet header, the value of the transport scrambling control bits can be used to indicate[d] an error when the transport packet payload is scrambled and decoding device expects a clear, non-encrypted stream.

Paragraph 1 and 2, page 90:

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In addition to the specific errors indicated by the status [states] codes, a transport packet having its transport error indicator bit asserted can be identified as an error, and in a specific embodiment can have it own error code.

Another condition that can be enabled and recognized by the system as an error is the presence of TError signal of the physical stream interface illustrated in Figure 8. In a specific embodiment different errors associated with the TError [Terror] signal can be recognized depending upon whether the Terror signal is asserted before or after reception of the transport packet's PID.

In the Claims:

1. (Amended) A method of handling errors in a system for receiving packet streams, the method comprising the steps of:
   dynamically enabling detection of a [an error] condition that identifies as [identified] an error [as being] a packet stream that is scrambles;
   determining if a received packet is scrambles; and
   performing an error recovery operation.

4. (Amended) The method of claim 1, wherein as a result of [the step of] performing [an] the error recovery operation, the received packet is disregarded.

7. (Amended) The method of claim 1, wherein [the step of] dynamically enabling error detection [an error condition] includes enabling the error condition by asserting a register bit.

8. (Amended) The method of claim 1, wherein [the step of] determing includes determining if the header information of the received packet indicates scrambling.

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9. (Amended) The method of claim 1, wherein [the step of] determining includes determining if the payload information of the packet stream packet payload is scrambled.

10. (Amended) The method of claim 9, wherein the payload [header] information includes transport stream payload data.

11. (Amended) The method of claim 9, wherein the payload [header] information includes packetized elementary stream payload data.

12. (Amended) A method of handling errors in a system for receiving packet streams, themethod comprising the steps of:

dynamically enabling hardware detection of a [an error] condition that identified an asserted [error in hardware] indicator in a packet as a recognized error;

receiving the packet;

determining if the [received] packet includes the [an] asserted [error] indicator; and

performing an error recovery operation when the packet includes the [an] asserted [error] indicator.

15. (Amended) The method of claim 12, wherein [the step of] enabling [an error condition] includes enabling hardware detection [the error condition] by asserting a register bit.

16. (Amended) The method of claim 12, wherein the error recovery operation [step] includes[;] sending an error code to a video decoder to indicate the received packet [packed] has an asserted error indicator.

19. (Amended) The method of claim 18, wherein [the step of] determining an asserted error code is performed in response to an external request.

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20. (Amended) A method of handling errors in a system for receiving a packet stream, the method comprising the steps of:

dynamically enabling detection of a [an error] condition that identifies a [an] continuity discrepancy as a recognized error;

determining if the [a] continuity discrepancy exists by the substeps of:

receiving a continuity count from a first packet;

receiving a continuity count from a second packet;

determining if the continuity discrepancy exists based upon the continuity counts from the first and second packet; and

performing an error recovery operation when a discrepancy exists.

21. (Amended) The method of claim 20 further comprising the step of:

maintaining a continuity discrepancy count, whereby the count is incremented when a continuity discrepancy is detected between the first and second packet;

maintaining a packet count, whereby the packet count is incremented to indicate the first and second packets [packet s] are received; and

determining a [an] continuity error rate based upon the continuity discrepancy count and the packet count.

22. (Amended) The method of claim 21, wherein [the step of] determining continuty error rate is performed in response to an external request.

23. (Amended) The method of claim 21 further comprising the step of:

generating an error indicator for transfer to a [an] first external device.

25. (Amended) A method of handling errors in a system for receiving packetized elementary streams, the method comprising the steps of:

dynamically enabling detection of a [an error] condition that identifies syntax errors in a packetized elementary stream as a recognized error;

determining if a syntax error exists by [the substeps of]

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receiving a header portion of a packetized elementary stream;

determining if a predetermined syntax condition of the header portion is met, where the syntax error exists if the syntax conditions are not met; and

performing an error recovery operation when a syntax error exists.

33 (Amended) The method of 32, wherein [the step of] receiving at least a portion of a packet includes the portion of a packet including a transport packet header.

34. (Amended) The method of claim 33, wherein [the step of] receiving at least a portion of a packet includes the portion of the packet being a packetized elementary stream header.

35. (Amended) The method of claim 32, wherein [the step of] determining an error occurred includes determining if an error bit in the at least a portion of the packet is enabled.

36. (Amended) The method of claim 32, wherein [the step of] determining if an error occurred includes determining if an error occurred based upon at least a portion of the packet.

37. (Amended) The method of claim 32, wherein [the step of] determining if an error occurred includes determining if an error occurred based upon a continuity counter.

38. (Amended) The method of claim 32, wherein the step of sending an error indicator to the [MPEG] video decoder processor includes sending the error code when at least the [a] portion of the packet is at least a portion of a video packet.

40. (Amended) The method of claim 39 [40], wherein the step of sending an error indicator includes sending the error code in a compressed video stream.

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41. (Amended) The method of claim 32 [41], wherein the step of sending an error indicator includes the error code having a hexadecimal value of 0x000001B4.

44. (Amended) The method of claim 32 [41], wherein [the step of] sending an error indicator further includes [the sub-step of] sending the error indicator when the error signal is asserted after a packet identifier is received [receive] as a portion of the packet.

In the Abstract:

In accordance with a specific aspect of the present invention, a compressed video stream, such as an MPEG-2 video stream, is received by a transport demultiplexor, synchronized, parsed into separate packet types, and written to buffer locations external the demultiplexor. Adaptation field is handled by a separate parser. In addition, primary elementary stream data can be handled by separate primary elementary stream parsers based upon the packet identifier of the primary elementary stream. Video packets can be parsed based upon stream identifier values. Specific packets of data are stored in one or more system memory or video memory buffers by an output controller based upon allocation table information. Private data associated with specific elementary streams or packet adaptation fields are repacketized, and written to an output buffer location. In specific implementations, the hardware associated with the system is used to acquire the data stream without any knowledge of the specific protocol of the stream. In another embodiment, the hardware is used to implement a splicing of streams of data. In yet [Yet] another [a specific] embodiment of the present invention, detection and/or handling of an error condition is enabled for an error capable [of as] being present in a packet stream.

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